



March 2, 2001

Mr. John O' Grady
Remedial Project Manager
U.S. Environmental Protection Agency Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Final Site Investigation Report Comments
Fansteel, Inc
Number One Tantalum Place
North Chicago, Illinois
U.S. EPA Order No. 05-2207-YTWW

Dear Mr. O' Grady:

T N & Associates, Inc. (TN&A), has reviewed Fansteels' Site Investigation Report of January 26, 2001, submitted to United States Environmental Protection Agency (US. EPA) Region V. TN&A's comments are provided in Attachment A.

TN&A appreciates this opportunity to provide these comments. Should you have any questions or comments, please contact me at 312/220-7000.

Sincerely,

A handwritten signature in black ink that reads "Raghu Nagam".

Raghu Nagam
Project Manager

Attachment A - TN&A Comments

cc: Dave Voight, T N & Associates, Inc.

EPA Region 5 Records Ctr.



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Attachment A

**T N & Associates, Inc., Comments
Final Site Investigation Report
Fansteel, Inc.**

**Fansteel
Site Investigation Report Review
T N & Associates, Inc.**

The Site Investigation (SI) Report has incorporated responses to all of T N & Associates, Inc.'s (TN&A), and United States Environmental Protection Agency's (USEPA) comments on draft SI Report for Fansteel, Inc., site.

The conclusion of the SI Report recommending an "Engineering Evaluation/Cost Analysis (EE/CA)" for Fansteel site" is appropriate.

General Comments:

1. As provided in the SI Report, TN&A recommends that the EE/CA for Fansteel cover investigations at I2 location on adjacent Vacant Lot and determine if volatile organic compounds (VOCs) found at Fansteel are impacting this location.
2. The SI Report concluded that it is inappropriate for Fansteel to conduct an EE/CA for Pettibone Creek because other contributing sources may be responsible for the contamination. TN&A recommends that a site investigation be conducted to assess the level of contribution due to Fansteel's operations. This site investigation could be conducted during Fansteel's EE/CA activities.

Overview of Fansteel's Responses

This is a recap of what was commented upon by USEPA and TN&A on Draft Site Investigation Report and the responses provided by Fansteel in the Final Site Investigation Report.

1. **Page 1-1, Section 1, Executive Summary, 3rd paragraph, 3rd sentence.** "An associated TCE groundwater plume was delineated ...to extend onto the Vacant Lot Site"
TN&A Comment: Further investigations are required to define the boundaries of this plume on Vacant Lot Site.
Fansteel Response: Perform an EE/CA to evaluate potential on-site and off-site impacts
2. **Page 1-1, Section 1, Executive Summary, 3rd paragraph, 6th sentence.** "CEI concludes that the elevatedand are unrelated to Fansteel's operations"
TN&A Comment: A determination of the extent of lead contamination in soil and groundwater is necessary to evaluate exposure risks and remediation objectives for this site.
Fansteel Response: Sentence deleted in Executive Summary section.
3. **Page 1-1, Section 1, Executive Summary, 3rd paragraph, last sentence.** "CEI recommends that Fansteel conduct an for tantalum, TCE, and TCE degradation products"
TN&A Comment: Lead and PNAs are present above Tiered Approach to Corrective Action Objectives (TACO) groundwater migration pathway levels. Exposure route analysis and site-specific remediation objectives for lead and PNAs should also be considered for this site.
Fansteel Response: Comment incorporated.

4. **Page 5-5, Section 5.5.4, Low Flow Ground Water Sampling, 1st paragraph, 5th sentence.** "Prior to sampling, a minimum of three well standing water volumes were pumped from each well"
TN&A Comment: On the days TN&A was present on site, true low-flow sampling was conducted by monitoring conductivity and other parameters and collecting a sample when the readings were stabilized. Purging of three well standing water volumes was not required under the low-flow sampling technique and water was not purged in that manner. Please correct this statement accordingly.
Fansteel Response: Sentence corrected.
5. **Page 6-1, Section 6.1, Action Levels, 2nd paragraph, last sentence.** "Fansteel recommends that an additional exposure route analysis be conducted that exceed the action levels (refer to Section 7.9)"
TN&A Comment: The report should indicate what this additional exposure route is and why this is necessary.
Fansteel Response: Sentence corrected to state that all compounds exceeding action levels will be evaluated under EE/CA.
6. **Page 6-1, Section 6.2, Field Observations, 1st paragraph, 4th sentence.** "As indicated on some of the boring logs, some slag-type and fly-ash types of materials ... fill material"
TN&A Comment: Future investigations should include sampling of these materials.
Fansteel Response: No comment.
7. **Page 6-2, Section 6.3, Soil Results.**
TN&A Comment: The compounds detected above TACO applicable levels and cited here should be considered chemicals of concern in future analysis. This Section should elaborate on the data gaps due to non-sampling of boring depths since sampling was driven by monitored PID readings.
Fansteel Response: The scope for EE/CA includes this criteria. Non-sampling of boring depths was not addressed.
8. **Page 7.1, Section 7.2, Subsurface Soils - General, 4th sentence.** "CEI asserts that any potential remediationif the soil exceeds the soil saturation limit, natural attenuation capacity and/or is adversely impacting the area groundwater ...off-site."
TN&A Comment: In addition to considering adverse impact to natural resources, U.S. EPA also evaluates ingestion, inhalation, and direct contact exposure threats to human population in determining appropriate remedial actions. PNA's, VOCs, and metals detected above TACO's applicable levels for above mentioned exposure routes should be considered along with lead and TCE in evaluating risks posed at the site and in determining appropriate remedial actions.
Fansteel Response: EE/CA to conduct risk evaluation.
9. **Page 7-2, 1st incomplete paragraph, last sentence.** "CEI concludes that the lack of a trend in the downstream creek sediment data does not support the conclusionthat Fansteel is the source of these contaminants"
TN&A Comment: TCE was detected in the sediment samples and was noted as increasing in concentration when moving south (downstream) in the Creek. TCE is a very mobile compound and readily gets into surface or groundwater. Tantalum metal

(even though not present in all sediment samples) and TCE are present on Fansteel site and used in their operations. The source for TCE contamination in the Creek could be from Fansteel operations/discharges. PNAs may be attributed to a different source since they were not present in elevated concentrations throughout the Fansteel site.

Fansteel Response: No response. Issue to be resolved by USEPA.

10. **Page 7-2, Section 7.5, Lead in Soil and Ground Water, 1st paragraph, 5th sentence.** "CEI believes that the elevated lead is a component of the fill materialconducted by VLS"

TN&A Comment: CEI basis for this conclusion is not clear in this report. Does this also mean that the fill material, which is present in the majority of the site, is lead contaminated?

Fansteel Response: No elaboration provided to conclude that contamination is due to VLS operations.

11. **Page 7-3, 1st incomplete paragraph, last sentence.** "CEI feels that the extent of the soil plume has been defined and does not appear to extend onto the Vacant Lot Site property"

TN&A Comment: Figure Five of the report indicates that the soil plume extends onto Vacant Lot site beyond the western boundary of Fansteel as indicated by GP-28/MW4 and GP-37 borings installed on Vacant Lot site. The extent of soil plume beyond these two borings is not known since samples were not collected. Future investigations should include sampling on Vacant Lot, at least up to the excavation boundary of U.S. EPA remedial action.

Fansteel Response: Sentence changed to state that the soil plume may extend on to Vacant Lot site and that further investigations are needed.

12. **Page 7-3, 1st complete paragraph.** "Based on the impacts to ground water and the high levels of TCE ...assess the potential exposure risks pathways for those areas not containing TCE concentrations which exceed the soil saturation limit"

TN&A Comment: Lead, some VOCs, and PNAs should also be included in evaluation of exposure pathway risks at this site.

Fansteel Response: These compounds are now recommended to be included in exposure pathway risk analysis.

13. **Page 7-3, Section 7.7, VOCs in Ground Water, 1st sentence.** "Figure six delineates the approximate TCE ground water plume"

TN&A Comment: This figure should be corrected to include TCE plume with relation to MW-8 and MW-9 monitoring wells of Fansteel and GEO-6 of U.S. EPA EE/CA investigation. TCE was detected in all the above sampling locations and should be considered in delineating a second TCE plume. Western boundary of the TCE plume due to HWMU is yet to be defined on Vacant Lot site and requires further sampling. TCE detected in geoprobe sampling conducted during U.S. EPA's EE/CA investigations (GEO 6, 7, 8, and 9) at Vacant Lot site may be part of the TCE plumes detected on Fansteel site and needs further evaluation.

Fansteel Response: Figure changed accordingly.

14. **Page 7.3, Section 7.8, Potential Off-Site Sources, 1st sentence.** "As detailed in this Report, CEI concludes that a TCE soil and ground water plume is present on the Fansteel property"

TN&A Comment: There are two TCE plumes on Fansteel site, one in the northern portion and one in the southwest portion of the site. There might be a source in the southern portion of the site since monitoring wells MW-5, MW-6, and MW-7 did not show contamination while MW-8 and MW-9 had contamination.

Fansteel Response: Concludes that there are two TCE plumes.

15. **Page 7-4, Section 7.9, Site Specific Remediation Objectives, 1st sentence.** "The only contamination resulting from Fansteel's former site operations is the TCE contaminant plumes delineated in Figures Five and Six"

TN&A Comment: Lead, other VOCs, and PNAs are found at the site and should be considered for further evaluation. Their extent of contamination should be determined.

Fansteel Response: Recommended these compounds for evaluation under EE/CA.

16. **Page 7-4, Section 7.10, Conclusions, 1st paragraph, 2nd sentence.** "Specifically, the investigation identified and defined the extent of potential contaminant plumes at locations south of 22nd Street"

TN&A Comment: The vertical extent of contamination is not identified in this report. Extent of contamination due to lead, other VOCs and PNAs is also not identified in this report. Since an EE/CA is being considered for this site, these investigations would be required to present a complete extent of contamination for all chemicals present on-site and off-site.

Fansteel Response: Deleted the sentence.

17. **Page 7-4, Section 7.10, Conclusions, 2nd paragraph, 2nd sentence.** "The soil plume does not appear to extend onto the Vacant Lot Site"

TN&A Comment: As part of this investigation, CEI did not collect soil samples from Vacant Lot site and hence does not have any information to indicate that TCE plume is not present on Vacant Lot. The location of monitoring well MW-4 is off-site on Vacant Lot and had shown TCE contamination. Beyond this location, additional sampling is necessary to determine the boundaries of the TCE plume on Vacant Lot site.

Fansteel Response: Deleted this sentence.